

REMARKS

Claims 20-23 have been allowed in the subject patent application. Claims 1-9, 12, 13 and 16-19 stand rejected, while Claims 10, 11, 14 and 15 merely were objected to as depending from a rejected claim. Claims 12 and 20 are amended to correct typographical errors. Claims 17-19 are being cancelled herein and replaced by new Claims 24-26. New Claims 27-30 also are being added. Therefore following entry of this amendment, Claims 1-16 and 20-30 will be pending.

Objection to the Drawings

Figures 1 and 2 were objected to as being hand-drawn.

Enclosed are computer generated drawings to replace both sheets that were submitted with the application. Note that in order to fit Figure 2 on a single sheet with properly sized reference numerals and legends, the components at the far right and left sides of the handwritten drawings have been rotated 90 degrees, however the electrical connections remain unchanged. Applicants request that the enclosed formal drawings be substituted for the handwritten ones submitted with the application.

Rejections Under 35 U.S.C. §103

Claims 1-4, 7-9, 12 and 16-19 were rejected under 35 U.S.C. §103 as being unpatentable over Young *et al.* It is contended that Young *et al.* discloses an automatic transfer switch having the recited components of original Claim 1, except that the patent does not expressly disclose a power converter provide internal power required by an internal component to operate. The rejection further alleges that it would be obvious to

supply the internal controller 29 with power generated by a DC to AC inverter 64 that allegedly corresponds to the claimed power converter.

Claim 1 has been amended to specify that the automatic transfer switch has a power converter which is connected to first and second input ports each receiving alternating current from a different power source. Note that the switch mode power supply 70 shown in Figure 1 receives alternating current through ports 25 and 35 from sources 20 and 30. In contrast, the Young *et al.* system receives alternating current from a utility grid 10 and direct current from a fuel cell 60. Because the load 14 requires alternating current, the inverter 64 converts the direct current from the fuel cell 60 into alternating current (see column 5, lines 3-14). Therefore the Young *et al.* converter does not receive alternating current from two different power sources as required in claim 1.

Furthermore, the reference does not describe the inverter performing as the claimed converter which ensures that the internal power satisfies a first criterion of an electrical characteristic wherein that characteristic of the input power varies. The inverter in Young *et al.* merely converts DC to AC without concern for such criterion between a characteristic of both the input and output power.

Furthermore the SSC 29, cited as an internal device requiring power, is specified as being a computer-type device which typically requires only direct current internally. Such computers have an AC to DC power supply that powers all its components. Therefore, one of ordinary skill in the art would supply that internal device with direct current at the input to the DC to AC inverter 64 and not from the converter' output where conversion back to DC would be required.

Dependent claims 3, and 4 recite a switch mode regulator which is part of an switch mode power supply for AC to DC conversion. Therefore, it would not be obvious to incorporate a switch mode regulator into the DC to AC inverter in Young *et al.* For Claim 4, the rejection cites filter 65 at the input of one of the power source connections as corresponding to the claimed first filter section. However, this filter 65 is at the utility grid connection that supplies power to the external load 14 and does not process power from the other power source, fuel cell 60. Thus, Young's filter is remote from and not part of its alleged power converter 64. As a result claims 3, and 4 are not rendered unpatentable under 35 U.S.C. §103.

Original Claims 17-19 have been cancelled thereby rendering their rejection moot.

For these reasons, the rejection has failed to establish a *prima facie* case of obviousness under 35 U.S.C. §103 with respect to Claims 1-9, 7-9, 12 and 16.

Claims 5-6 and 13 have been rejected under 35 U.S.C. §103 as being unpatentable over Young *et al.* in view of Hansson *et al.*

The rejection is contending with respect to Claims 5 and 6 that it would be obvious to provide a second filter as shown in Hansson *et al.* with the Young *et al.* circuit. However as noted previously Young *et al.* employs a DC to AC inverter 63 and whereas a switch mode power supply, as in Hansson *et al.*, is a AC to DC converter. Specifically the second filter 130 in Hansson *et al.* filters direct current at the output of the power supply and it would not be obvious to provide a DC filter at the alternating current output of the DC to AC inverter 64 in Young *et al.*

Furthermore nothing in Young *et al.* teaches the need to regulate the power conversion so as to produce output power which satisfies a first criterion of an internal load wherein the characteristic associated with that criterion varies through a range.

Claim 13 specifies that the power converter includes a switch mode power supply and a separate switch mode regulator coupled to the output terminal of the switch mode power supply. Note that in Figure 1 of the present application the output of the switch mode power supply 70, which is used to operate some of the internal devices, also is applied to a totally separate switch mode regulator 65 to provide power to other internal devices. As noted previously, it would not be obvious include an AC to DC switch mode power supply in the DC to AC inverter 64 of Young *et al.* Even if one was to somehow use the Hansson *et al.* power supply in the Young *et al.* inverter that still would only teach either a switch mode power supply or a switch mode regulator, but not both of those elements as recited in Claim 13.

Because Hansson and Young *et al.* teach devices that are the inverse of each other, one converting AC to DC and the other DC to AC, it would not be obvious to combine their elements. Therefore, the rejection has not shown that Claims 5, 6 and 13 would have been obvious to a skilled artisan under 35 U.S.C. §103.

New Claims

Claims 24-26 recite an automatic transfer switch that selectively connects a load to first and second input powers each having three phases. That apparatus also includes a switch mode power supply that is connected to only two phases of the first input power and to only two phases of the second input power.

The Young *et al.* patent teaches an automatic transfer switch for use with a first source 10 of alternating current and a second source (fuel cell 60) of direct current. Therefore, it requires a inverter 64 for DC to AC conversion. Nothing in that reference remotely suggests the use of a switch mode power supply which by definition converts AC to DC power, just the inverse of the inverter. Nor is there a suggestion of a switch mode power supply that is connected to only two phases of the first power source and only two phases of the second power source.

As a result, a skilled artisan would not find it obvious to incorporate elements from the switch mode DC power supply of Hansson *et al.* with the automatic transfer switch-like apparatus in Young *et al.* Any contention to the contrary is clearly made with the hindsight of the teachings in the present application and such use of hindsight is clearly proscribed.

Claim 25 states that a switch mode regulator is connected to the output terminal of the switch mode power supply, see devices 70 and 85 connected in this manner in the present application. Even Hansson *et al.* fails to suggest utilizing this combination, and nothing suggests this combination for an automatic transfer switch-like apparatus of Young *et al.*

Claim 26 similarly is patentable because it would not be obvious to combine elements of an AC to DC power supply in Hansson *et al.* with the DC to AC inverter of the automatic transfer switch in Young *et al.*

Claim 27 specifies that the power converter in Claim 1 is coupled simultaneously to the first input port and the second input port each receiving alternating current. Claim 30 specifies this type of connection for the switch mode power supply in claim 24. In contrast

Young *et al.* has its inverter 64 connected to the DC output of the fuel cell 50 and to the AC utility grid 10.

Claim 28 states that the power converter comprises a switch mode power supply and it is unobvious to use that type of AC to DC power supply in the Young *et al.* DC to AC inverter.

Claim 29 specifies that the power converter provides direct current whereas the Young *et al.* inverter provides alternating current and there is not converter in that patent that provides DC internal power.


Therefore new Claims 27-30 are not suggested by the cited references

Conclusion

In view of these distinctions between the subject matter of the present claims and teachings of the cited patents, reconsideration and allowance of the present application are requested.

Respectfully submitted,
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Dated: October 6, 2006

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Amendments to the Drawings:

The attached two sheets of drawings provide formal drawings.

Attachment: Replacement sheets